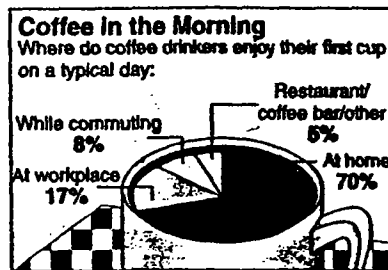


H W (on separate paper)

## Basic Skills and Concepts

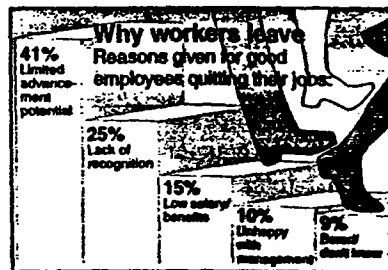
**Performing a Chi-Square Goodness-of-Fit Test** In Exercises 1–10, (a) identify the claim and state  $H_0$  and  $H_a$ , (b) find the critical value and identify the rejection region, (c) find the test statistic  $\chi^2$ , and (d) decide whether to reject or fail to reject the null hypothesis. Then interpret the decision in the context of the original claim.

- Results from a survey five years ago asking where coffee drinkers typically drink their first cup of coffee are shown in the graph. To determine whether this distribution has changed, you randomly select 581 coffee drinkers and ask each where they typically drink their first cup of coffee. The results are listed in the table. Can you conclude that there has been a change in the claimed or expected distribution? Use  $\alpha = 0.05$ . (Adapted from USA Today)



Survey results	
Response	Frequency
At home	389
At workplace	110
While commuting	55
Restaurant/coffee bar/other	27

- A personnel director believes that the distribution of the reasons workers leave their jobs is different from the one shown in the graph. The director randomly selects 200 workers who recently left their jobs and asks each his or her reason for doing so. The results are shown in the table. At  $\alpha = 0.05$ , are the distributions different? (Adapted from USA Today)



Survey results	
Response	Frequency
Limited advancement potential	78
Lack of recognition	52
Low salary/benefits	30
Unhappy with mgmt.	25
Bored/don't know	15

- A bicycle safety organization claims that fatal bicycle accidents are uniformly distributed throughout the week. The following table lists the day of the week for which 911 randomly selected fatal bicycle accidents occurred. At  $\alpha = 0.10$ , is the distribution uniform? (Adapted from Insurance Institute for Highway Safety)

Day	Frequency	Day	Frequency
Sunday	118	Thursday	129
Monday	119	Friday	146
Tuesday	127	Saturday	135
Wednesday	137		